

**CALIFORNIA DEPARTMENT OF TRANSPORTATION  
DUTY STATEMENT**

<b>CLASSIFICATION TITLE</b> Senior Transportation Electrical Engineer	<b>DISTRICT/DIVISION/OFFICE</b> D04/Office of Electrical Design & Operations	
<b>WORKING TITLE</b> Senior Transportation Electrical Engineer	<b>POSITION NUMBER</b> 904-371-3164-XXX	<b>EFFECTIVE</b> 02/26/2014

**As a valued member of the Caltrans team, you make it possible for the Department to improve the mobility across California by being innovative and flexible; reporting to work regularly and on time; working cooperatively with team members and others; and treating others fairly, honestly and with respect. Your efforts are important to each member of the team, as well as those we serve.**

**GENERAL STATEMENT:**

Under the general direction of a Supervising Transportation Electrical Engineer, the Senior Transportation Electrical Engineer (STEE) serves as the Branch Chief of Electrical Design III Branch responsible for electrical engineering activities related to the planning, design, and research for Roadway, Toll Bridges, Tunnels and Tubes facilities. Responsibilities include planning, designing, and overseeing the construction and implementation of electrical and electronic systems on the Bay Area Roadways, Toll Bridges, Tunnels and Tubes such as: Medium Voltage (MV-15KV) and Low Voltage (LV) Power Distribution systems, Lighting Systems (tunnel, bridge, highway, navigation, aviation, and aesthetic), Traffic Operations System (TOS), Supervisory and Data Acquisition system (SCADA), Radio Rebroadcast Systems, Fog Detection Systems, Radar Beacons, MV Short Circuit Study, MV Arc Flash Study, MV Substation Power System Study, MTC-SAFE Emergency Call Boxes, Ramp Metering, and Intelligent Transportation System (ITS) including traffic management, traffic detection, traffic surveillance, and motorist information components, communication systems. Must possess a current California Professional Engineering License.

**TYPICAL DUTIES:**

Percentage	Job Description
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Essential (E)/Marginal (M)<sup>1</sup>

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| 60% (E) | Plans, coordinates, and directs work performed by electrical design engineers that engaged in the following work: <ul style="list-style-type: none"><li>a. Preparation of plans, specifications, and estimate for transportation improvement projects.</li><li>b. Design oversight of plans, specifications, and estimate prepared by others.</li><li>c. Review and preparation of responses for encroachment permit applications.</li></ul> |
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- 20% (E) Schedules and monitors progress of work and assures delivery of the office's products and services, within planned schedule budget and scope, in coordination with District and headquarters management, and internal or external stakeholders. Develops, monitors, and reports appropriate information relating to performance measures, delivery of products and services, expenditure of personnel and operating allocations, etc., on a monthly basis, in coordination with the Division's administrative units.
- 10%(E) Prepares and/or reviews correspondence, reports, and presentation material, in response to inquiries and/or concerns raised by the public, media, partner agencies or legislators. Works with District functional units to ensure successful construction and maintenance of highway lighting, and traffic operations systems components.
- 5%(M) Provide construction support and oversight.
- 5%(M) Write correspondences to public utilities, local agencies, resident engineers and vendors, and respond to inquiries from various sources.

### **SUPERVISION EXERCISED OVER OTHERS**

Directly supervises a group of transportation electrical engineers

### **KNOWLEDGE, ABILITIES AND ANALYTICAL REQUIREMENTS**

Knowledge of electrical engineering and electronics relative to the design, construction, maintenance and operation of roadway, bridges, tunnels and tubes lighting systems; ITS; MV power distribution; communications and radio rebroadcast systems; Supervisory Control And Data Acquisition (SCADA); navigation, aviation lighting and fog detection systems; applicable traffic safety engineering; general knowledge of various codes, standards, and regulations governing the design, installation, and operation of electrical, computer, electronic systems.

Knowledge of principles and techniques of engineering management, personnel management and supervision, as well as full familiarity with Department's policies, goals and objective in providing equal employment opportunity, employee safety and health, and labor relations.

This position requires extensive analytical ability in the area of electrical and electronics engineering design as it relates to traffic management and operations systems, as well as project management skills for delivery of various projects and support activities. The incumbent must resolve highly technical and/or politically sensitive problems, administrative and personnel matters, and interagency and public relations. Must possess a current California Professional Engineering License.

### **CONSEQUENCE OF ERROR/RESPONSIBILITY FOR DECISIONS**

This position is extremely sensitive to the consequences of design errors since most of the decisions and the recommendations involve traffic control and the traveling public. Errors or delays in decision could result in a risk to state highway, bridge, tunnel and tube users with attendant liability to the State arising from traffic collisions or hazards. Many of the decisions must be made quickly and based not only on familiarity with the various State and National manuals, codes, warrants, standards, or guidelines, but also using professional judgment and experience. In addition to the obvious safety implications and financial liability, the Department could suffer serious loss of credibility and faith with the general

public arising from unnecessary congestion and delay due to faulty judgment. Failure to schedule and manage the many aspects of the electrical engineering work properly could result in missing project delivery milestones and subsequent failure in timely delivery of projects, potentially endangering funding and damaging Caltrans's image.

### **PUBLIC AND INTERNAL CONTACTS**

The incumbent represents Caltrans and participates in meetings with federal, state, regional, and local agencies, providing expertise on technical and electrical engineering matters pertaining to projects in District 4. Other external contacts involve counterparts in partnering public agencies, consulting engineers, members of technical societies and the academia; manufacturers and sale representative of electrical products related to MV and LV Power Distribution systems, Lighting Systems, TOS, SCADA, Radio Rebroadcast Systems, Fog Detection Systems, Radar Beacons, ITS, traffic management, traffic detection, traffic surveillance, and motorist information components and communication systems for Roadways, Toll Bridges, Tunnels and Tubes.

public utility engineers; private citizens, and legislators. Internally, the incumbent establishes and maintains good working relationships with other Districts, headquarters' management, the Division of Research and Innovation, and other functional units within the District.

### **PHYSICAL, MENTAL AND EMOTIONAL REQUIREMENTS**

Physical requirements may require incumbents to move files and equipment from one location to another, occasionally bending, stooping and kneeling. Incumbent may also be required to work long hours including some outside normal business hours and weekends during emergencies.

Mental requirements include sustained mental activity needed for review of plans and specifications, problem solving, analysis and negotiation. Must have ability to work as part of a team, multi-task, adapt to changes in priorities, and complete tasks or projects within short notice. Must have ability to model the way, inspire a shared vision, challenge the status quo to help develop new insights into situations and towards innovative solutions to make organizational improvements, enable others to act and to the tools and support they need to perform well, and to recognize and reward excellent performance.

Emotional requirements include the ability to develop and maintain cooperative working relationships with irate callers and dissatisfied customers; respond appropriately to difficult situations; recognize emotionally charged issues and problems, and acknowledge the various responses. Must be able to deal effectively under pressure, maintain focus and intensity and yet remain optimistic and persistent even under adversity. Will consider and respond appropriately to the needs, feelings, and capabilities of others in different situations; will be tactful and treat others with respect.

### **WORK ENVIRONMENT**

While at the base of operations, the incumbent will work in a climate-controlled office under artificial lighting. The incumbent may also be required to travel within or outside the District on occasion.

I have read and understand the duties listed above and can perform them with/without reasonable accommodation. (If you believe you may require reasonable accommodation, please discuss this with the hiring supervisor. If you are unsure whether you require reasonable accommodation, inform the hiring supervisor who will discuss your concerns with the Reasonable Accommodation Coordinator.)

EMPLOYEE

DATE

I have discussed the duties with and provided a copy of this duty statement to the employee named above.

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SUPERVISOR

DATE